

Docket No.: 043887-0180

PATENT

IFW

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

International Application of

Kenya HORI, et al.

Application No.: 10/562,796

Filed: December 29, 2005

For: LIGHT-EMITTING ELEMENT AND DISPLAY DEVICE

: Customer Number: 20277

: Confirmation Number: 8728

: Group Art Unit: 2879

: Examiner: WILLIAMS, JOSEPH L

LETTER TRANSMITTING

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

Mail Stop OIPE
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

Submitted herewith is the International Preliminary Examination Report concerning
PCT/JP2004/009668, filed on July 1, 2004.

Respectfully submitted,

McDERMOTT WILL & EMERY LLP

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Date: November 2, 2006

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NOTIFICATION OF TRANSMITTAL
OF COPIES OF TRANSLATION
OF THE INTERNATIONAL PRELIMINARY REPORT
ON PATENTABILITY
(CHAPTER I OR CHAPTER II
OF THE PATENT COOPERATION TREATY)
(PCT Rules 44bis.3(c) and 72.2)

From the INTERNATIONAL BUREAU

To:

KAWAMIYA, Osamu
Aoyama & Partners
IMP Building
3-7, Shiromi 1-chome, Chuo-ku
Osaka-shi, Osaka 5400001
JAPON

Date of mailing (day/month/year) 26 May 2006 (26.05.2006)	IMPORTANT NOTIFICATION
Applicant's or agent's file reference 664574	
International application No. PCT/JP2004/009668	International filing date (day/month/year) 01 July 2004 (01.07.2004)
Applicant MATSUSHITA ELECTRIC INDUSTRIAL CO., LTD. et al	

1. Transmittal of the translation to the applicant.



The International Bureau transmits herewith a copy of the English translation of the international preliminary report on patentability (Chapter I).



The International Bureau transmits herewith a copy of the English translation of the international preliminary report on patentability (Chapter II).

2. Transmittal of the copy of the translation to the designated or elected Offices.

The International Bureau notifies the applicant that copies of that translation have been transmitted to the following designated or elected Offices requiring such translation:

None

The following designated or elected Offices, having waived the requirement for such a transmittal at this time, will receive copies of that translation from the International Bureau only upon their request:

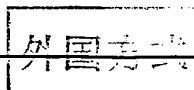
AE, AG, AL, AM, AP, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EA, EC, EE, EG, EP, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OA, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW

3. Reminder regarding translation into (one of) the official language(s) of the elected Office(s).

The applicant is reminded that, where a translation of the international application must be furnished to an elected Office, that translation must contain a translation of any annexes to the international preliminary report on patentability (Chapter II).

It is the applicant's responsibility to prepare and furnish such translation directly to each elected Office concerned within the applicable time limit (Rule 74.1). See Volume II of the PCT Applicant's Guide for further details.

The International Bureau of WIPO 34, chemin des Colombettes 1211 Geneva 20, Switzerland	Authorized officer Masashi Honda
Facsimile No.+41 22 740 14 35	Facsimile No.+41 22 338 70 10



PATENT COOPERATION TREATY

PCT

INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

(Chapter I of the Patent Cooperation Treaty)

(PCT Rule 44bis)

Applicant's or agent's file reference 664574	FOR FURTHER ACTION	See item 4 below
International application No. PCT/JP2004/009668	International filing date (<i>day/month/year</i>) 01 July 2004 (01.07.2004)	Priority date (<i>day/month/year</i>) 02 July 2003 (02.07.2003)
International Patent Classification (8th edition unless older edition indicated) See relevant information in Form PCT/ISA/237		
Applicant MATSUSHITA ELECTRIC INDUSTRIAL CO., LTD.		

1. This international preliminary report on patentability (Chapter I) is issued by the International Bureau on behalf of the International Searching Authority under Rule 44 bis.1(a).
2. This REPORT consists of a total of 5 sheets, including this cover sheet.

In the attached sheets, any reference to the written opinion of the International Searching Authority should be read as a reference to the international preliminary report on patentability (Chapter I) instead.

3. This report contains indications relating to the following items:

- | | | |
|-------------------------------------|--------------|---|
| <input checked="" type="checkbox"/> | Box No. I | Basis of the report |
| <input type="checkbox"/> | Box No. II | Priority |
| <input type="checkbox"/> | Box No. III | Non-establishment of opinion with regard to novelty, inventive step and industrial applicability |
| <input type="checkbox"/> | Box No. IV | Lack of unity of invention |
| <input checked="" type="checkbox"/> | Box No. V | Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement |
| <input type="checkbox"/> | Box No. VI | Certain documents cited |
| <input type="checkbox"/> | Box No. VII | Certain defects in the international application |
| <input type="checkbox"/> | Box No. VIII | Certain observations on the international application |

4. The International Bureau will communicate this report to designated Offices in accordance with Rules 44bis.3(c) and 93bis.1 but not, except where the applicant makes an express request under Article 23(2), before the expiration of 30 months from the priority date (Rule 44bis .2).

The International Bureau of WIPO 34, chemin des Colombettes 1211 Geneva 20, Switzerland Facsimile No. +41 22 740 14 35	Date of issuance of this report 15 May 2006 (15.05.2006) Authorized officer <div style="text-align: center; font-weight: bold; font-size: 1.2em;">Masashi Honda</div> Telephone No. +41 22 338 70 10
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PATENT COOPERATION TREATY

TRANSLATION

From the
INTERNATIONAL SEARCHING AUTHORITY

PCT

WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY

(PCT Rule 43bis.1)

To:

Date of mailing
(day/month/year)

Applicant's or agent's file reference

664574

FOR FURTHER ACTION

See paragraph 2 below

International application No.

PCT/JP2004/009668

International filing date (day/month/year)

01.07.2004

Priority date (day/month/year)

02.07.2003

International Patent Classification (IPC) or both national classification and IPC

Applicant

MATSUSHITA ELECTRIC INDUSTRIAL CO., LTD.

1. This opinion contains indications relating to the following items:

- | | | |
|-------------------------------------|--------------|--|
| <input checked="" type="checkbox"/> | Box No. I | Basis of the opinion |
| <input type="checkbox"/> | Box No. II | Priority |
| <input type="checkbox"/> | Box No. III | Non-establishment of opinion with regard to novelty, inventive step and industrial applicability |
| <input type="checkbox"/> | Box No. IV | Lack of unity of invention |
| <input checked="" type="checkbox"/> | Box No. V | Reasoned statement under Rule 43bis.1(a)(i) with regard to novelty, inventive step or industrial applicability: citations and explanations supporting such statement |
| <input type="checkbox"/> | Box No. VI | Certain documents cited |
| <input type="checkbox"/> | Box No. VII | Certain defects in the international application |
| <input type="checkbox"/> | Box No. VIII | Certain observations on the international application |

2. **FURTHER ACTION**

If a demand for international preliminary examination is made, this opinion will be considered to be a written opinion of the International Preliminary Examining Authority ("IPEA") except that this does not apply where the applicant chooses an Authority other than this one to be the IPEA and the chosen IPEA has notified the International Bureau under Rule 66.1bis(b) that written opinions of this International Searching Authority will not be so considered.

If this opinion is, as provided above, considered to be a written opinion of the IPEA, the applicant is invited to submit to the IPEA a written reply together, where appropriate, with amendments, before the expiration of 3 months from the date of mailing of Form PCT/ISA/220 or before the expiration of 22 months from the priority date, whichever expires later.

For further options, see Form PCT/ISA/220.

3. For further details, see notes to Form PCT/ISA/220.

Name and mailing address of the ISA/JP

Authorized officer

Facsimile No.

Telephone No.

WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY

International application No.

PCT/JP2004/009668

Box No. 1

Basis of this opinion

1. With regard to the language, this opinion has been established on the basis of the international application in the language in which it was filed, unless otherwise indicated under this item.
☐ This opinion has been established on the basis of a translation from the original language into the following language _____, which is the language of a translation furnished for the purposes of international search (under Rule 12.3 and 23.1(b)).
2. With regard to any nucleotide and/or amino acid sequence disclosed in the international application and necessary to the claimed invention, this opinion has been established on the basis of:
 - a. type of material
☐ a sequence listing
☐ table(s) related to the sequence listing
 - b. format of material
☐ in written format
☐ in computer readable form
 - c. time of filing/furnishing
☐ contained in the international application as filed.
☐ filed together with the international application in computer readable form.
☐ furnished subsequently to this Authority for the purposes of search.
3. ☐ In addition, in the case that more than one version or copy of a sequence listing and/or table(s) relating thereto has been filed or furnished, the required statements that the information in the subsequent or additional copies is identical to that in the application as filed or does not go beyond the application as filed, as appropriate, were furnished.
4. Additional comments:

**WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY**

International application No.

PCT/JP2004/009668

Box No. V	Reasoned statement under Rule 43bis.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement		
1. Statement			
Novelty (N)	Claims	1-8	YES
	Claims	_____	NO
Inventive step (IS)	Claims	_____	YES
	Claims	1-8	NO
Industrial applicability (IA)	Claims	1-8	YES
	Claims	_____	NO
2. Citations and explanations:			
<p>Document 1: JP 10-214995 A (Matsushita Electric Industrial Co., Ltd.), 11 August 1998</p> <p>Document 2: JP 63-318092 A (Stanley Electric Co., Ltd.), 26 December 1988</p> <p>Document 3: "Kaitei Dai 4 han Kagaku Binran Kiso hen II", 1993 nen Hakkou</p> <p>Document 4: JP 2000-340366 A (TDK Corp.), 08 December 2000</p> <p>Document 5: JP 2003-115385 A (Japan Science and Technology Corporation), 18 April 2003</p>			
<p>The invention of claim 1 (in particular, see embodiment 1) does not appear to involve an inventive step based on document 1 and document 2 cited in the ISR.</p> <p>Document 1 discloses an EL element of a DC dispersion type that uses a light-emitting layer having silicon fine particles with a particle size of 5 nm or less.</p> <p>Comparison of the invention of claim 1 with the invention disclosed in document 1 demonstrates that they different in the following aspect and are identical in other aspects.</p> <p>In the invention of claim 1, the silicon fine particles are "covered with an electrically conductive substance on at least part of the surface", whereas in the invention of document 1, no such feature is disclosed (referred to herein below as "difference 1").</p> <p>This difference 1 is examined below.</p> <p>As disclosed in the section "Prior Art" of document 2, it is well known to a person skilled in the art that an electrically conductive layer has to be provided, e.g., on the surface of crystals in order to induce EL light emission of a fluorescent substance. Therefore, covering an electrically conductive substance on the surface of silicon fine particles, which are a fluorescent material, in the invention of document 1 would be easy for a person skilled in the art.</p>			

Supplemental Box

In case the space in any of the preceding boxes is not sufficient.

Continuation of: Box V

The inventions of claims 2, 5 do not appear to involve an inventive step based on document 1 and document 2.

The electrically conductive substance disclosed in document 2 and document 5 are the substances that are used for electrodes in the field of technology relating to EL elements comprising organic EL elements and it is obviously well known to any person skilled in the art that such substances are electrically conductive. Furthermore, it is obvious that the film voltage of an electrically conductive substance has to be less than a fixed value in order to prevent the element from being short circuited. Setting the film pressure of an electrically conductive substance in the invention of claim 5 to 50 nm or less is merely equivalent to setting numeral values for such limitation.

The inventions of claims 3, 4 do not appear to involve an inventive step based on document 1-2.

Pages II-491 - II-497 of document 3 describe electric resistivity of various substances. It is clear to a person skilled in the art that among those substances, titanium nitride with a low electric resistivity is an electrically conductive substance. Furthermore, it is obvious that the film voltage of an electrically conductive substance has to be less than a fixed value in order to prevent the element from being short circuited. Setting the film pressure of an electrically conductive substance in the invention of claim 4 to 30 nm or less is merely equivalent to setting numeral values for such limitation.

The invention of claim 6 does not appear to involve an inventive step based on document 1-4.

Document 4 (in particular, see Par. No. 0012) discloses a technology for providing an electron transport layer in an inorganic EL element of a carrier injection type.

Therefore, employing the technology disclosed in document 43 in the invention described in document 1 would be easy for a person skilled in the art.

The inventions of claims 7-8 do not appear to involve an inventive step based on document 1-5.

As disclosed in document 5 (in particular, Par. No. 0013-0021, 0023-0024 and Fig. 4), inorganic EL display devices of an active matrix type having thin-film transistors represent well-known technology and creating an inorganic EL display device of an active matrix type that has thin-film transistors from inorganic EL elements disclosed in document 1 would not be that difficult.